Household Refrigeration

A COMPLETE TREATISE ON THE PRINCIPLES, TYPES, CONSTRUCTION, AND OPERATION OF BOTH ICE AND MECHANICALLY COOLED DOMESTIC REFRIGERATORS, AND THE USE OF ICE AND REFRIGERATION IN THE HOME

BY

H. B. HULL

Refrigeration Engineer

Second Edition Enlarged

PUBLISHERS:

NICKERSON & COLLINS CO.,

CHICAGO

59, to contain 2, 4, 6, 8 or 10 trays of ice. Each tray supplies 10 cubes of ice.

General Electric.—The General Electric Refrigerator is made by the General Electric Company of Schenectady, N. Y.

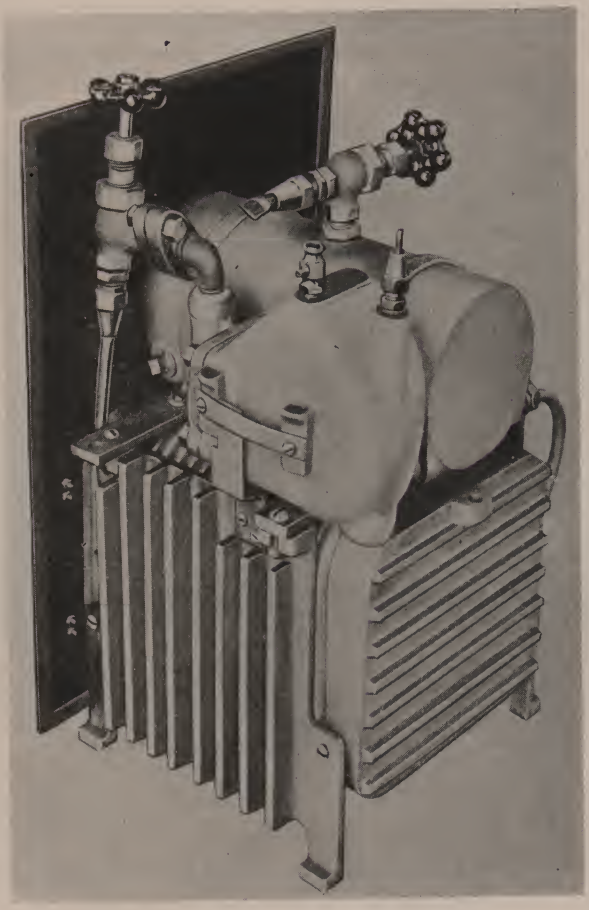

FIG. 58.—FROSTIC COOLING UNIT.

Fig. 60 shows the complete refrigerating unit installed in a refrigerator cabinet.

The refrigerant used is sulphur dioxide. All moving parts are hermetically sealed in a drawn steel case containing the refrigerant—sulphur dioxide—and the lubricant. The con-

denser and evaporator coils are brazed to the steel casing. Specially developed insulated leads, similar to spark plugs, are used for the electrical connection to the motor. This construction permits complete enclosure and the elimination of the stuffing box through which gas or oil might leak. There

FIG. 59.—FROSTIC ICE TRAY COMPARTMENT.

is no external piping, cooling fan, belt or other external moving part.

The essential operating parts consist of:

1. A 1/6-hp., 110-volt, 60-cycle, split-phase motor, mounted vertically. This motor is exceedingly simple in design and sturdy in construction—without brushes or other moving contacts.

2. A two-cylinder, single-acting compressor having oscilating cylinders.

3. A discharge valve of spring steel so arranged as to eliminate noise.

4. A copper tube condenser coil of circular cross section.

5. A float valve to regulate the amount of refrigerant passing to the evaporator coils.

6. An evaporator coil of copper tubing immersed in the brine tank.

7. An automatic regulating control.

FIG. 60.—GENERAL ELECTRIC REFRIGERATOR UNIT INSTALLED IN CABINET.

Freezing Unit.—The cooling tank, which is suspended within the cabinet itself, is covered inside and out with white, fused-on vitreous porcelain—long wearing and easy to clean. Three freezing trays, having a capacity of seven pounds of ice cubes, can be slipped into compartments in the tank. These

trays are of heavily tinned copper and are furnished with removable dividers to provide twenty-one cubes for each tray, or a total of sixty-three cubes for the three trays.

Control.—Complete automatic temperature and current control are provided.

A control box on the front of the unit contains a manually-operated switch for disconnecting the machine, for defrosting or any other purpose.

The control box also contains an automatic thermostatic switch for starting and stopping the machine in response to temperature changes, a relay for transferring motor connections from starting to running position and a thermal, time-limit relay for protecting the motor from overload damage, also a reset button for a resumption of operation.

The automatic control is so adjusted that a brine temperature is maintained between 16 and 24 degrees, thereby maintaining a continuous cabinet temperature of from 40 to 50 degrees F., which is admittedly the most satisfactory temperature for food preservation.

Installation.—Installation is extremely simple as the refrigerator need only be moved to the desired position and attached to the nearest electric outlet. It can be installed wherever it will prove most convenient as there is no special plumbing or permanent fixtures to be connected to it. The cooling tank is placed in the cabinet, filled with a solution of salt brine and the refrigerating unit set into place. It is thoroughly portable and can readily be moved.

Ice Maid.—The Ice Maid household refrigerating unit, Fig. 61, made by the Lamson Company, Syracuse, N. Y., uses ethyl chloride as a refrigerant and a rotary pump as a compressor directly connected through a flexible coupling to a motor running at a speed of 1,450 to 1,750 r.p.m.

The condenser is of the tubular honeycomb type, located between the motor and pump and cooled by a fan upon the motor shaft.

The air, after passing through the condenser, is discharged over the pump and serves to keep it cool.